

**Kreutzer, R. (1990). Montecito Union School Magnetic Field Survey. Emeryville, California Department of Health Services, Environmental Epidemiology and Toxicology Section.**

**SUMMARY**

In September of 1989, California Department of Health Services (DHS) staff conducted an initial, limited survey of magnetic field levels at Montecito Union School as part of the DHS leukemia and Lymphoma Cluster Investigation in Montecito. The community had several concerns regarding the cluster, one of which included possible health effects from electromagnetic fields (EMFs) produced by a transformer station adjacent to the school and by an aerial transmission line crossing over the north side of the school's property. Four of the six children with cancer attended the school. Recent scientific studies have suggested a link between power-frequency (60-Hz) electromagnetic fields and adverse health effects, particularly childhood cancer, although research in this area is still preliminary and inconclusive.

The objective of the September survey was to determine if unusually high EMF levels were present at the school from the substation or from the aerial power line that might explain the cancer cluster. In the opinion of DHS researchers, unusually high EMF levels were not observed that would explain the cancer cluster. Members of the community, when asked for comment, requested that greater effort be exerted to refine and confirm the findings. The resultant larger survey provided the data for this report. While all parties acknowledged the inherent limitations on health risks from EMF exposure, parents of the school children and school officials would use this information to propose risk management strategies.

This survey was designed by representatives of the school, community parents, Southern California Edison, the Santa Barbara County Health Department and DHS. The survey was conducted by Enertech Inc., an independent consulting firm selected by community parents and funded by Southern California Edison, on Wednesday, February 28 and Thursday, March 1, 1990, with DHS providing assistance and oversight.

Several methods to characterize magnetic field levels at the school were employed. 1) To measure the influence of EMF sources external to the school surveys of the school's periphery were performed. 2) In selected classrooms EMF measurements were collected in the center to determine representative magnetic field levels and along the walls to further characterize the levels in the room. 3) "Profile" surveys (surveys to observe how quickly field levels dropped off with distance) were performed on selected EMF sources. 4) Stationary measurements were performed at selected locations for period of 8 to 33 hours. 5) Measurements were also performed on the asphalt playground and on the teachers' parking lot.

The survey found that the magnetic field levels at Montecito Union School were not unusually high in most parts of the school. Magnetic field levels near the power lines along the north side of the school were in the 5 to 30 milliguass (abbreviated mG) range, similar to what one is exposed to when near a common electrical household appliance such as a TV or a radio. No significant contribution to the magnetic field levels at the school was observed from the transformer station.

The dominant EMF sources in all of the rooms surveyed were common electrical appliances, such as video display terminals and radio, and wall wiring. A few feet away from these sources, the rooms had magnetic field levels below 2 mG. The number of appliances in these rooms and their attendant fields would be expected in most schools.

The highest magnetic field levels recorded were against the “pad mounted” transformer housing at the southwest corner of the teachers’ parking lot, where levels of up to 920 mG were recorded. The nearby switch box mounted outside Room 25 and the service panel on the stairwell near the cafeteria also had relatively high readings (up to 640 and 135 mG, respectively). The magnetic field levels dropped off quickly with distance from these sources.

At this time, not enough is known about the health effects of electromagnetic fields to make mandatory recommendations based on these findings. We understand that school authorities have taken precautionary measures to insure that children are not exposed to magnetic fields levels greater than 2.5 mG for extended periods of time. This is a prudent course of action until a better understanding about the potential health risks of EMFs is attained.